

**WEST**[Help](#)[Logout](#)[Interrupt](#)[Main Menu](#)[Search Form](#)[Posting Counts](#)[Show S Numbers](#)[Edit S Numbers](#)[Preferences](#)[Cases](#)**Search Results -**

Terms	Documents
L5 and (antisense or ribozyme\$)	10

**Database:**

[US Patents Full-Text Database](#)  
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**Search:**

L6

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                          result set

DB=USPT,PGPB,JPAB,EPAB,DWPI,TDBD; PLUR=NO; OP=OR

<u>L6</u>	L5 and (antisense or ribozyme\$)	10	<u>L6</u>
<u>L5</u>	L4 and reject\$	39	<u>L5</u>
<u>L4</u>	L3 and (vcam or elam or icam)	39	<u>L4</u>
<u>L3</u>	cornea\$ same allograft\$	326	<u>L3</u>
<u>L2</u>	L1 and (icam or elam or vcam)	10	<u>L2</u>
<u>L1</u>	cornea\$ same explant\$	103	<u>L1</u>

END OF SEARCH HISTORY

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**Search Results -**

Terms	Documents
L4 and reject\$	39

**Database:**

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☐ US Pre-Grant Publication Full-Text Database  
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☐ Derwent World Patents Index  
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**Search:**

L5

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<u>L5</u>	L4 and reject\$	39	<u>L5</u>
<u>L4</u>	L3 and (vcam or elam or icam)	39	<u>L4</u>
<u>L3</u>	cornea\$ same allograft\$	326	<u>L3</u>
<u>L2</u>	L1 and (icam or elam or vcam)	10	<u>L2</u>
<u>L1</u>	cornea\$ same explant\$	103	<u>L1</u>

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**\*File 159: Cancerlit ceases updating with immediate effect.**

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**\*File 467: For information about updating status please see Help News467.**

Set Items Description  
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?s cornea? (s) explant?  
232579 CORNEA?  
130403 EXPLANT?  
S1 1177 CORNEA? (S) EXPLANT?  
?s s1 (s) (icam or elam or vcam)  
1177 S1  
71655 ICAM  
4900 ELAM  
24078 VCAM  
S2 10 S1 (S) (ICAM OR ELAM OR VCAM)

?rd

...completed examining records  
S3 4 RD (unique items)

?show files;ds;t/3,k/all

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S1	1177	CORNEA? (S) EXPLANT?
S2	10	S1 (S) (ICAM OR ELAM OR VCAM)
S3	4	RD (unique items)

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3/3,K/1 (Item 1 from file: 5)  
DIALOG(R)File 5-Biosis Previews(R)  
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14163665 BIOSIS NO.: 200300157694

**Intercellular adhesion molecule-1 expression on human corneal epithelial outgrowth from limbal explant in culture.**

AUTHOR: Iwata M(a); Fushimi N; Suzuki Y; Suzuki M; Sakimoto T; Sawa M  
AUTHOR ADDRESS: (a)Department of Ophthalmology, Nihon University, School of Medicine, 30-1 Ohyaguchikami-machi, Itabashi-ku, Tokyo, 173-8610, Japan\*\*  
Japan

JOURNAL: British Journal of Ophthalmology 87 (2):p203-207 February 2003  
2003

MEDIUM: print

ISSN: 0007-1161

DOCUMENT TYPE: Article

RECORD TYPE: Abstract

LANGUAGE: English

ABSTRACT: Aim: To investigate the relation between intercellular adhesion molecule (\*ICAM\*)-1 expression and cellular dynamics occurring concomitantly with epithelial cell movement. Methods: Outgrowing epithelial sheets of human \*corneal\* epithelial (HCE) cells from cultured limbal \*explants\* were examined by immunoperoxidase staining with anti-\*ICAM\*-1 monoclonal antibody. An adhesion assay was performed using the epithelial sheets of HCE cells and an Epstein-Barr virus (EBV) infected B cell lymphoma cell line (EBV+BJAB) expressing CD11a/CD18, a counter-receptor of \*ICAM\*-1. Also, the effect of calphostin C, a specific protein kinase C (PKC) inhibitor, on \*ICAM\*-1 expression on the outgrowing epithelial sheets of HCE cells was examined. Results: Strong positive staining for \*ICAM\*-1 was found predominantly on HCE cells in the marginal segment of the epithelial sheet, particularly on the cells at the leading edge. EBV+BJAB cells adhering to the HCE cells corresponded well to the area of \*ICAM\*-1 staining. Treatment of outgrowing epithelial sheets with calphostin C markedly decreased the \*ICAM\*-1 expression on the HCE cells. Conclusion: \*ICAM\*-1 is actively expressed on HCE cells in the marginal segment of the outgrowing epithelial sheets where there is active movement mediated through a PKC dependent mechanism, suggesting the role of \*ICAM\*-1 in epithelial cell motility such as the spreading and migration of cells.

3/3,K/2 (Item 1 from file: 34)  
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07614223 Genuine Article#: 178MF No. References: 0

**Title: Dexamethasone inhibs cytokine induced \*ICAM\* and VEGF expression in human \*corneal\* \*explants\***

Author(s): Sims MG; Tsai SY; Lai CI; Bowen TA; Bouchard CS  
Corporate Source: LOYOLA UNIV,MED CTR, PROGRAM NEUROSCI, DEPT CELL BIOL NEUROBIOL & ANAT/NEW ORLEANS//LA/70118; LOYOLA UNIV,MED CTR, DEPT OPHTHALMOL/NEW ORLEANS//LA/70118; CHICAGO COLL OSTEOPTH MED,/CHICAGO//IL/

Journal: INVESTIGATIVE OPHTHALMOLOGY & VISUAL SCIENCE, 1999, V40, N4 (MAR 15), P36244-36244

ISSN: 0146-0404 Publication date: 19990315

Publisher: ASSOC RESEARCH VISION OPHTHALMOLOGY INC, 9650 ROCKVILLE PIKE, BETHESDA, MD 20814-3998

Language: English Document Type: MEETING ABSTRACT

**Title: Dexamethasone inhibs cytokine induced \*ICAM\* and VEGF expression in human \*corneal\* \*explants\***

3/3,K/3 (Item 1 from file: 399)

138332860 CA: 138(22)332860v PATENT

**Antisense oligonucleotide targeting cell adhesion molecules for preserving corneal explants and preventing corneal allograft rejection**

INVENTOR(AUTHOR): Bennett, C Frank; Mirabelli, Christopher K.

LOCATION: USA

ASSIGNEE: Isis Pharmaceuticals, Inc.

PATENT: PCT International ; WO 200332929 A2 DATE 20030424

APPLICATION: WO 2002US33235 (20021015) \*US 982262 (20011018)

PAGES: 105 pp. CODEN PIXXD2 LANGUAGE English CLASS: A61K-000/A

DESIGNATED COUNTRIES: AE; AG; AL; AM; AT; AU; AZ; BA; BB; BG; BR; BY; BZ; CA; CH; CN; CO; CR; CU; CZ; DE; DK; DM; DZ; EC; EE; ES; FI; GB; GD; GE; GH; GM; HR; HU; ID; IL; IN; IS; JP; KE; KG; KP; KR; KZ; LC; LK; LR; LS; LT; LU; LV; MA; MD; MG; MK; MN; MW; MX; ME; NO; NZ; OM; PH; PL; PT; RO; RU; SD; SE; SG; SI; SK; SL; TJ; TM; TN; TR; TT; TZ; UA; UG; US; UZ; VN; YU; ZA; ZM; ZW; AM; AZ; BY; KG; KZ; MD; RU; TJ; TM DESIGNATED REGIONAL: GH; GM; KE; LS; MW; ; ME; SD; SL; SZ; TZ; UG; LM; ZW; AT; BE; BG; CH; CY; CZ; DE; DK; EE; ES; FI; FR; GB; GR; IE; IT; LU; MC; NL; PT; SE; SK; TR; BF; BJ; CF; CG; CI; CM; GA; GN; GQ; GW; ML; MR; NE; SN; TD; TG

3/3,K/4 (Item 2 from file: 399)

DIALOG(R)File 399:CA SEARCH(R)

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138331722 CA: 138(22)331722q PATENT

**Oligonucleotide modulation of cell adhesion for preserving corneal explants and preventing corneal allograft rejection**

INVENTOR(AUTHOR): Bennett, C. Frank; Mirabelli, Christopher

LOCATION: USA

PATENT: U.S. Pat. Appl. Publ. ; US 20030077565 A1 DATE: 20030424

APPLICATION: US 982262 (20011018) \*US 7997 (19930121) \*US 969151

(19930210) \*US 63167 (19930517) \*US 440740 (19950512) \*US 128496 (19980803) \*US 659288 (20000912)

PAGES: 58 pp., Cont.-in-part of U.S. Ser. No. 659,288, abandoned.

CODEN: USXXCO LANGUAGE: English CLASS: 435002000; A61K-048/00A;

A01N-001/02B

?s s1 and (elam or vcam or icam) and (antisense or ribozyme?)

1177 S1

4900 ELAM

24078 VCAM

71655 ICAM

154052 ANTISENSE

31644 RIBOZYME?

S4 2 S1 AND (ELAM OR VCAM OR ICAM) AND (ANTISENSE OR RIBOZYME?)

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S5 2 FD (unique items)

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S1	1177	CORNEA? (S) EXPLANT?
S2	10	S1 (S) (ICAM OR ELAM OR VCAM)
S3	4	RD (unique items)
S4	2	S1 AND (ELAM OR VCAM OR ICAM) AND (ANTISENSE OR RIBOZYME?)
S5	2	RD (unique items)



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5/3,K/1 (Item 1 from file: 399)  
DIALOG(R)File 399:CA SEARCH(R)  
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138332860 CA: 138(22)332860v PATENT  
**Antisense oligonucleotide targeting cell adhesion molecules for preserving corneal explants and preventing corneal allograft rejection**  
INVENTOR(AUTHOR): Bennett, C. Frank; Mirabelli, Christopher K.  
LOCATION: USA  
ASSIGNEE: Isis Pharmaceuticals, Inc.  
PATENT: PCT International ; WO 200332920 A2 DATE: 20030424  
APPLICATION: WO 2002US33236 (20021016) \*US 982262 (20011018)  
PAGES: 106 pp. CODEN: PIXXD2 LANGUAGE: English CLASS: A61K-000/A  
DESIGNATED COUNTRIES: AE; AG; AL; AM; AT; AU; AZ; BA; BB; BG; BR; BY; BZ; CA; CH; CN; CO; CR; CU; CZ; DE; DK; DM; DZ; EC; EE; ES; FI; GB; GD; GE; GH; GM; HR; HU; ID; IL; IN; IS; JP; KE; KG; KP; KR; KZ; LC; LK; LR; LS; LT; LU; LV; MA; MD; MG; MK; MN; MW; MX; MZ; NO; NZ; OM; PH; PL; PT; RO; RU; SD; SE; SG; SI; SK; SL; TJ; TM; TN; TR; TT; TZ; UA; UG; US; UZ; VN; YU; ZA; ZM; ZW; AM; AZ; BY; KG; KZ; MD; RU; TJ; TM DESIGNATED REGIONAL: GH; GM; KE; LS; MW ; MZ; SD; SL; SZ; TZ; UG; ZM; ZW; AT; BE; BG; CH; CY; CZ; DE; DK; EE; ES; FI; FR; GB; GR; IE; IT; LU; MC; NL; PT; SE; SK; TR; BF; BJ; CF; CG; CI; CM; GA; GN; GQ; GW; ML; MR; NE; SN; TD; TG

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138331722 CA: 138(22)331722q PATENT  
**Oligonucleotide modulation of cell adhesion for preserving corneal explants and preventing corneal allograft rejection**  
INVENTOR(AUTHOR): Bennett, C. Frank; Mirabelli, Christopher  
LOCATION: USA  
PATENT: U.S. Pat. Appl. Publ. ; US 20030077565 A1 DATE: 20030424  
APPLICATION: US 982262 (20011018) \*US 7997 (19930121) \*US 969151 (19930210) \*US 63167 (19930517) \*US 440740 (19950512) \*US 128496 (19980803) \*US 659288 (20000912)  
PAGES: 58 pp., Cont.-in-part of U.S. Ser. No. 659,288, abandoned.  
CODEN: USXXCO LANGUAGE: English CLASS: 435002000; A61K-048/00A;  
A01N-001/02B  
?s cornea? (s) allograft?  
232579 CORNEA?  
184996 ALLOGRAFT?  
S6 3095 CORNEA? (S) ALLOGRAFT?  
?s s6 and (vcam or elam or icam)  
3095 S6  
24078 VCAM  
4900 ELAM  
71655 ICAM  
S7 94 S6 AND (VCAM OR ELAM OR ICAM)  
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31644 RIBOZYME?  
S8 4 S6 AND (ANTISENSE OR RIBOZYME?)  
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...completed examining records  
S9 4 RD (unique items)  
?show files;ds;t/3,k/all  
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Set	Items	Description
S1	1177	CORNEA? (S) EXPLANT?
S2	10	S1 (S) (ICAM OR ELAM OR VCAM)
S3	4	RD (unique items)
S4	2	S1 AND (ELAM OR VCAM OR ICAM) AND (ANTISENSE OR RIBOZYME?)
S5	2	RD (unique items)
S6	3095	CORNEA? (S) ALLOGRAFT?
S7	94	S6 AND (VCAM OR ELAM OR ICAM)
S8	4	S6 AND (ANTISENSE OR RIBOZYME?)
S9	4	RD (unique items)

>>>KWIC option is not available in file(s): 399

9/3,K/1 (Item 1 from file: 399)  
DIALOG(R)File 399:CA SEARCH(R)  
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138332860 CA: 138(22)332860v PATENT  
**Antisense oligonucleotide targeting cell adhesion molecules for preserving corneal explants and preventing corneal allograft rejection**  
INVENTOR(AUTHOR): Bennett, C. Frank; Mirabelli, Christopher K.  
LOCATION: USA  
ASSIGNEE: Isis Pharmaceuticals, Inc.  
PATENT: PCT International ; WO 200332920 A2 DATE: 20030424  
APPLICATION: WO 2002US33236 (20021016) \*US 982262 (20011018)  
PAGES: 106 pp. CODEN: PIXXD2 LANGUAGE: English CLASS: A61K-000/A  
DESIGNATED COUNTRIES: AE; AG; AL; AM; AT; AU; AZ; BA; BB; BG; BR; BY; BZ; CA; CH; CN; CO; CR; CU; CZ; DE; DK; DM; DZ; EC; EE; ES; FI; GB; GD; GE; GH; GM; HR; HU; ID; IL; IN; IS; JP; KE; KG; KP; KR; KZ; LC; LK; LR; LS; LT; LU; LV; MA; MD; MG; MK; MN; MW; MX; MZ; NO; NZ; OM; PH; PL; PT; RO; RU; SD; SE; SG; SI; SK; SL; TJ; TM; TN; TR; TT; TZ; UA; UG; US; UZ; VN; YU; ZA; ZM; ZW; AM; AZ; BY; KG; KZ; MD; RU; TJ; TM DESIGNATED REGIONAL: GH; GM; KE; LS; MW; MZ; SD; SL; SZ; TZ; UG; ZM; ZW; AT; BE; BG; CH; CY; CZ; DE; DK; EE; ES; FI; FR; GB; GR; IE; IT; LU; MC; NL; PT; SE; SK; TR; BF; BJ; CF; CG; CI; CM; GA; GN; GQ; GW; ML; MR; NE; SN; TD; TG

9/3,K/2 (Item 2 from file: 399)  
DIALOG(R)File 399:CA SEARCH(R)  
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138331722 CA: 138(22)331722q PATENT  
**Oligonucleotide modulation of cell adhesion for preserving corneal explants and preventing corneal allograft rejection**  
INVENTOR(AUTHOR): Bennett, C. Frank; Mirabelli, Christopher  
LOCATION: USA  
PATENT: U.S. Pat. Appl. Publ. ; US 20030077565 A1 DATE: 20030424  
APPLICATION: US 982262 (20011018) \*US 7997 (19930121) \*US 969151 (19930210) \*US 63167 (19930517) \*US 440740 (19950512) \*US 128496 (19980803) \*US 659288 (20000912)  
PAGES: 58 pp., Cont.-in-part of U.S. Ser. No. 659,288, abandoned.  
CODEN: USXXCO LANGUAGE: English CLASS: 435002000; A61K-048/00A;  
A01N-001/02B

9/3,K/3 (Item 1 from file: 442)  
DIALOG(R)File 442:AMA Journals  
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00115965  
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**Corneal Dystrophies of Epithelial Genesis The Possible Therapeutic Use of Limbal Stem Cell Transplantation (ARTICLE)**

... Retroviral transduction of the cultured cells could prevent production of the defective keratoepithelin by targeting the messenger RNA carrying the mutation. Such an approach using \*ribozymes\* has been used to target mutated rhodopsin in animal models of retinitis pigmentosa.<sup>29/</sup> The proof of principle for this approach has been provided in...155-171.

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9/3,K/4 (Item 2 from file: 442)

DIALOG(F)File 442:AMA Journals

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00115712

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**Topical Soluble Tumor Necrosis Factor Receptor Type I Suppresses Ocular Chemokine Gene Expression and Rejection of Allogeneic Corneal Transplants (ARTICLE)**

QIAN, YING; DEKARIS, IVA; YAMAGAMI, SATOFU; DANA, M. REZA

Archives of Ophthalmology

Dec, 2000; Laboratory Sciences: tzol656

LINE COUNT: 00573

... sTNFR-I- and vehicle only-treated groups was determined using a multiprobe ribonuclease protection assay. Results: Hosts treated with topical sTNFR-I experienced significantly enhanced \*corneal\* \*allograft\* survival compared with animals treated with vehicle alone (P=.01). Moreover, postoperative messenger RNA levels of RANTES and macrophage inflammatory protein-1B in sTNFR-I-treated eyes were substantially suppressed compared with vehicle-treated eyes. Vehicle-treated eyes bearing rejected \*allografts\* expressed higher levels of messenger RNA for both chemokines than control eyes bearing accepted \*allografts\*. Conclusions: Topical treatment with sTNFR-I promotes the acceptance of allogeneic corneal transplants and inhibits gene expression of 2 chemokines (RANTES and macrophage inflammatory protein-1B) associated with corneal graft

rejection. Clinical Relevance: Our findings support the feasibility of a topical anticytokine strategy as a means of reducing \*corneal\* \*allograft\* rejection without resorting to the use of potentially toxic immunosuppressive drugs. Arch Ophthalmol. 2000;118:1666-1671

DESPITE the overall success of \*corneal\* transplantation, immunologic rejection remains the principal threat to \*allograft\* longevity.<sup>1/</sup> Although not all of the cellular and molecular components that mediate \*corneal\* graft rejection have been identified to date, there is increasing evidence that the proinflammatory cytokine tumor necrosis factor <unprintable> (TNF-<unprintable>) is involved in the...

... Based on these data, it has been proposed<sup>2,8,13/</sup> that TNF-<unprintable> could serve as an appropriate target for therapeutic intervention in prevention of \*corneal\* \*allograft\* rejection. It has already been shown that administration of anti-TNF-<unprintable> therapy can be effective in treatment of immune-mediated diseases, including arthritis<sup>14-17...</sup>

... can be associated with untoward adverse effects, in this study we investigated the effect of topical soluble TNFR-I (sTNFR-I) on the survival of \*corneal\* \*allografts\*. Soluble TNFR-I has been shown to profoundly suppress bioactivity of TNF-<unprintable> by binding free TNF-<unprintable> and preventing ligation of the membrane-bound receptors.<sup>17/</sup>

\*Corneal\* \*allograft\* rejection is pathologically characterized by leukocytic infiltration into the graft stroma and adherence of mononuclear cells to the donor \*corneal\* endothelium.<sup>12/</sup> Recruitment of immune and inflammatory cells to the target tissue, including \*allografts\*, has been associated with the function of specialized chemotactic cytokines known as chemokines.<sup>25/</sup> Studies have shown that \*corneal\* transplant rejection is associated with profound up-regulation in ocular gene expression of CC (B) chemokines, including macrophage inflammatory protein-1 alpha, macrophage inflammatory protein...

... also interested in determining whether local suppression of TNF-<unprintable> activity by application of sTNFR-I could alter gene expression of the chemokines associated with \*corneal\* transplant rejection.

#### RESULTS

##### ORTHOTOPIC \*CORNEAL\* \*ALLOGRAFT\* SURVIVAL

A total of 50 corneas from B10.D2 mice were grafted orthotopically onto 50 BALB/c mice, of which 30 were randomized to receive...

... treated grafted eyes did not reveal any statistically significant differences.

#### COMMENT

In the present study, prophylactic administration of topical sTNFR-I enhanced the survival of \*corneal\* \*allografts\* disparate at multiple minor H antigens. These findings, coupled with the previous observation<sup>2/</sup> that hosts with a genetic deficiency of TNFR-I exhibit a profound increase in the survival rate of minor H-mismatched \*corneal\* grafts, strongly confirm TNF-<unprintable> as an important mediator in the pathogenesis of \*corneal\* \*allograft\* rejection. We focused our attention on alloimmunity to minor antigens because it has been shown that disparity at the level of minor antigens provides a significantly more formidable immune barrier to \*corneal\* graft acceptance than disparity at major histocompatibility complex loci.<sup>29/</sup> Accordingly, Sonoda and Streilein<sup>30/</sup> showed that grafts disparate at multiple minor H antigens are rejected on the induction and expression of \*corneal\* alloimmune mechanisms remains incompletely understood. In the murine orthotopic \*corneal\* transplantation model, peak secretion of TNF-<unprintable> protein in allogeneic grafts is observed 1 to 2 weeks after surgery,<sup>9/</sup> whereas graft rejection typically occurs...

... phase of alloimmunity is supported by previous data<sup>13/</sup> from our laboratory showing that the migration of professional antigen-presenting cells (including Langerhans cells) into the \*cornea\* is largely mediated by TNF-<unprintable>. The critical role of antigen-presenting cell migration in indirect sensitization of T cells to \*corneal\* transplants<sup>31,32/</sup> is emphasized by data<sup>33/</sup> showing that suppression of Langerhans cell trafficking into \*corneal\* grafts can prevent host sensitization to the

transplants. Accordingly, we propose that local neutralization of TNF-~~unprintable~~ activity by application of sTNFR-I imposes its beneficial effect on \*allograft\* survival, at least in part, by inhibiting leukocyte recruitment in the early postoperative period.

As shown previously,<sup>13/</sup> TNF-~~unprintable~~ need not effect its chemoattractant.

... chemokine mRNA in grafted hosts treated with sTNFR-I and vehicle alone. Consistent with previous findings<sup>26/</sup> in major histocompatibility complex and minor H fully mismatched \*corneal\* transplantation, increased gene expression of RANTES and MIP1B is associated with rejection of minor H-disparate \*corneal\* grafts. More important, our results clearly show that sTNFR-I therapy applied after \*corneal\* transplantation significantly down-regulates local gene expression of RANTES and MIP1B. These ligands, by virtue of binding to the widely expressed CCR1 and CCR5 receptors...

... as critical chemoattractants for antigen-presenting cells and activated CD4+/+ T cells.<sup>6,7,37,38/</sup> Preliminary data from our laboratory in nontransplant models of \*corneal\* inflammation show a significant suppression of \*corneal\* dendritic cell migration in response to \*corneal\* injury after treatment with sTNFR-I (unpublished observations). Our present data demonstrating that sTNFR-I treatment can suppress expression of RANTES and MIP1B below that for accepted untreated \*corneas\* suggest that the depressed level of chemokine expression is not simply secondary to suppression of the rejection process but rather a mechanism by which sTNFR-I can mediate its beneficial effect on \*allograft\* survival. Taken together, these data support our hypothesis that sTNFR-I can down-modulate the induction and expression phases of alloimmunity by suppressing leukocyte recruitment...this represents the first study providing evidence for local anti-TNF strategies, using the novel method of topically administering sTNFR-I, for effective prevention of \*corneal\* \*allograft\* rejection. Various forms of recombinant sTNFR-I, including monomeric 4 domain, monomeric 2.6 domain, and 30-kd polyethylene glycol-linked 2.6 domain molecules...

... surface that is also well tolerated because of its biophysical properties and hence can increase the availability of pharmacotherapeutic agents to the ocular surface and \*cornea\*.<sup>41,42/</sup>

Currently available preventive and therapeutic regimens for corneal transplant rejection are associated with significant complications.<sup>43/</sup> Hence, it is desirable to devise intervention...

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#### MATERIALS AND METHODS

##### ANIMALS

Six- to 8-week-old male BALB/c mice (Taconic Farms Inc, Germantown, NY) and... a multiprobe ribonuclease protection assay system (PharMingen, San Diego, Calif) as recommended by the supplier. Briefly, a mixture of [ $\text{unprintable}$ ]-/32/P]uridine triphosphate-labeled \*antisense\* riboprobes was generated from the chemokine template set mCK-5 (PharMingen). Fifteen micrograms of total RNA was used in each sample. Total RNA was hybridized overnight at 56 degreesC with 300 pg of the /32/P \*antisense\* riboprobe mixture. Nuclease-protected RNA fragments were purified by ethanol precipitation. After purification, the samples were resolved on 5% polyacrylamide sequencing gels. The gels were...

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